



ARIZONA STATE
UNIVERSITY

**Information Technology
Strategic Plan 2014- 2018**

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INTRODUCTION

THE UTO MISSION

Arizona State University's University Technology Office (UTO) provides the highest quality technology based services and systems, in a cost-effective manner, to support the University's mission and goals as they apply to student learning, academic research and engagement in public service.

VISION STATEMENT

Evidence suggests that we now have the capacity, experience and technological maturity to finally utilize technology as a force multiplier and as a strategic differentiator.

Accordingly, we have adopted the following statement:

Realize the potential...

- of information technology to enable and empower students, faculty and staff.
- of information technology to transform and benefit ASU processes
- of information technology to serve and support the ASU community
- of our people to become leaders in their profession.

ASU has achieved considerable success at creating strategic advantage through the innovative use of information technologies. In fact, the institution's leadership recognizes that the only way to provide a high quality, personalized educational experience at the scale at which ASU now operates is through the effective use of technology. The tremendous growth of the university, not only in size but in quality, has been accomplished largely through the university's ability to leverage its technology assets, especially the expertise of its people.

The previous (2013-2017) ASU IT Strategic Plan identified twenty-four (24) goals across seven (7) main areas – Student Success, IT Infrastructure, Administrative Effectiveness, IT Security, Academic Technology, Research Computing, and Strategic Technology Alliances – and aligns those goals with related ASU Strategic Priorities. This annual update indicates adjustments in and revisions to those goals as some are completed; others demand course corrections and development as new goals emerge. The strategy defined in this plan reflects the progress made towards objectives defined in the 2013-2017 IT Strategic Plan, which itself was an update of the previous Plan and contains the assessment of the Chief Information Officer (CIO) who is responsible for the maintenance of this plan.

Ultimately, it is the assessment of the CIO that the fundamental strategies defined in the previous strategic plan – in particular, increasing the pace of innovation and doing more with less by focusing on core vs. context – remain valid. But meeting the challenges of the future will require increased agility and effectiveness of decision-making, innovative strategies for delivery of services and support, and an intense focus on continuing to develop those capabilities that have created the strategic advantage the university enjoys.

Despite the national and statewide trend of declining numbers of college-eligible students, ASU continues to grow in enrollment. Likewise, all measures of quality and student success continue to improve. Financially stronger than at any time in the past five years, the university is able to invest in strategic initiatives that build even greater differentiation and strategic advantage. While the financial stress of the previous years has lessened considerably there remains a need to maintain a relentless focus on reducing cost and improving the effectiveness of centralized IT services. Demand continues to increase at a pace far exceeding the UTO's ability to accommodate, and a redoubling of efforts to add capacity while limiting cost increases is necessary. Recent investments in infrastructure have begun to pay benefits, and the institution now has a reliable, stable platform from which to launch broader, more strategic programs. Early success in leveraging data to improve student outcomes has led to the realization that even greater benefits in terms of prospect yield, student retention, and graduation rates can be achieved by reducing the 'friction' students encounter with institutional academic and administrative processes. Thus, a major new strategic effort in the coming year(s) is to reengineer those student-facing processes and the underlying applications and systems that support those processes, all with the aim of reducing the likelihood that a student will encounter barriers to academic success. This initiative includes the re-introduction of our previously outsourced IT Helpdesk, Student Financial Aid call center, and HR call center, integrating elements of each with other student-centric services across the institution.

Likewise, increased recognition of the value of a strategic approach to constituent management has generated interest in a common CRM platform and, ultimately, the ability to leverage the data maintained in that platform to improve student and benefactor yield, retention, and success. Accordingly, an enterprise-wide implementation of Salesforce will be pursued in the coming year, with subsequent phases further extending the benefits of that platform to multiple areas of the institution.

The appointment by the provost of an associate provost for educational technologies signifies the commitment the institution is making to the use of technology in the curriculum. As such, the coming years will see additional investment in facilities, systems, and staff to improve faculty understanding of ways that technology can be leveraged in individual courses, and will provide academic leadership with recommendations on institutional policy regarding technology use. Immediate efforts to establish facilities and services to assist faculty in gaining insight and expertise in leveraging technology in the classroom are underway and will expand as the demand for these services increases.

Growth of the research programs continues to drive demand for additional high performance computing capacity. ASU's strength in data intensive analytics and business intelligence are stimulating much interest by potential partners, and great potential exists to position ASU as a world leader in emerging data related disciplines, further leveraging investments being made in high performance computing and advanced networking, especially for healthcare and

related research disciplines.

Trends identified previously as impacting the university environments – cloud computing, mobility, and personalized applications – continue to heavily influence the nature of the services presented by the UTO. Additionally, the current and emerging investments in Big Data, analytics, the implementation of Information Technology Infrastructure Library (ITIL) service management practices, and most importantly, an expanded view by university leadership of the potential for further improving student success by leveraging technology to improve the service experience and, ultimately, delivering an increasingly comprehensive picture of the student experience - will have tremendous positive impact on educational and research outcomes.

ASU's core ERP transaction environments – Oracle/PeopleSoft for HR/Payroll and Student – will continue to be upgraded and maintained according to Oracle's recommendations and consistent with best practices of other higher education customers. Planned upgrades and will continue through the coming years to keep the systems current. UTO will continue to seek ways to reduce the cost of maintenance and support through outsourcing and consolidation. Continued examination of the timing and strategy for replacement of the legacy Financials platform will occur in the coming year. Investments by the state in the existing hardware platform continues to provide some relief, but the shrinking base of expertise available to maintain the application represents increasing risk over time. Preliminary planning for the implementation of a replacement system will continue over the coming months, but no specific timetable for delivery of a new system has yet been established.

New approaches to service delivery will be needed if UTO is to stay relevant to the ASU community – especially important is reducing the time-to-delivery of solutions, whether the need is for a new mobile application, a website, or an entirely new service. Self-service options, pre-negotiated contracts for development services with built-in coding and security standards, cloud-based on-demand development/production environments, models and customized services that are sufficiently elastic to permit rapid growth/rapid elimination of IT support for departments are all approaches that UTO will explore in the coming months and years. Additionally, for those units with the financial capacity but not the expertise or desire to maintain their own dedicated IT service group, UTO will continue to evolve mechanisms (financial and managerial) that allow departments to effectively 'outsource' their local IT support needs back to UTO.

Finally, the recognition that data, and the ability to leverage it, are among out most important strategic assets driving the development of formalized methods to manage, maintain, govern, and protect it. ASU's success depends in part on its ability to derive value from the data it maintains. The coming years will require a continued investment in infrastructure and expertise in the art and science of data driven decision-making.

IT STRATEGIC PLANNING CLIMATE

The information technology environment is an increasingly important element of university life. Universities around the United States and around the world are struggling to meet the growing technology expectations of their faculty and students. Existing models for delivering IT services that once propelled universities to the leading edge are now falling further and further behind the services available in the global marketplace.

ESCALATING EXPECTATIONS

Not so long ago, a seat in the common computing lab and an email address were all most students expected from their university's technology system. Over the past decade however, the technology environment has become an increasingly important element of students' university experience. Many prospective students' first impressions of the University now come from interacting with its website to learn more about the campus, investigate majors and courses of study, and manage the stages of the application process. Today's incoming students, familiar with computers and the Internet since birth, have grown up to expect a wide range of services and information to be available electronically any time of the day or night. Most students now bring several technology devices to campus and expect them to integrate easily into the University's cyber infrastructure and for them to be useful in their studies.

The faculty, too, have increasingly high expectations for their information services. More and more instructors now use a variety of digital materials to supplement yesterday's textbooks and in-class lectures. Where once a whiteboard or overhead projector was sufficient to conduct class, many instructors now expect their classrooms to be equipped with computer projection equipment to allow them to present all kinds of media as part of day-to-day instruction. Faculty's research requirements are also increasingly digital. Researchers in many disciplines—not just science and engineering—now require increasing amounts of compute power, bandwidth, storage, and technological expertise to compete effectively for external funding.

INCREASING PACE OF INNOVATION

While the importance of technology to the university continues to grow, universities have lost the technology leadership they once enjoyed. The vertically integrated approach that led to the first widespread use of email, administrative automation, and computer networks has been eclipsed by the rapid industrialization of information technology in the commercial and consumer sectors.

The result is that vertically integrated university IT organizations are now struggling just to continue to maintain basic services, leaving little resource, time, or energy for the deep application of rapidly emerging technologies to the core activities of the university.

The unprecedented acceleration in technological advancement that marks the dawn of the 21st century offers both opportunities and challenges. The stream of new technologies will continuously enable new and better ways of communicating, creating, and synthesizing knowledge. But at the same time, the mounting pace of technological advancement will apply increasingly competitive

pressure, as institutions are differentially able to adapt to the escalating pace of change.

The most successful institutions will be those that are able to reap continual advantage from the power of rapidly changing technologies while effectively managing the disruption these changes inevitably bring. To advance in the face of these impending pressures, ASU must develop new strategies for rapidly and continually integrating technology into every facet of its operational structure.

ACHIEVING MORE WITH LESS

Information technology organizations in institutions, both private and public, are struggling to shift their energy and expenditures from Context to Core. Context activities are those that an institution requires but which do not distinguish it from its competitors. Core activities are those which, when improved, provide an institution with differential advantage. For a university, Core activities are those that improve teaching and learning, enhance the growth and quality of research, and attract talented students and faculty.

A typical IT enterprise spends 80% of its resources to run the operation (context) and only 20% to improve it (core). However, some leading edge IT enterprises have been able to shift these percentages dramatically, pushing more resources into advancement by using IT simplification to continually reduce the costs of operation.

STRATEGIC AREAS, GOALS AND ACTION PLANS



AREA #1: STUDENT SUCCESS

Arizona State University is committed to student success and The Office of the Provost has embarked on a broad initiative to enhance graduation and retention rates by helping students choose majors earlier and provide them with the resources they need to successfully complete those majors.

A key component of this initiative is the continual improvement of eAdvisor, ASU's innovative web-based information system. eAdvisor makes it easier for entering students to choose a major based on their interests and career goals and helps them monitor their progress against their major's "critical track"—the specific set of curricular requirements for that major, arranged in sequence, that allows a student to know exactly what to take and when. As their degree progresses semester by semester, the system's enhanced academic planner allows students to compare their current transcript with the "critical tracks" for other majors, to help students understand more clearly what the impact of changing majors would be. Finally, by aggregating student progress in the critical tracks, the system can do more effective enrollment planning to ensure that the required courses students need to progress will be available in the semester that they need them.

In concert with the development of eAdvisor, My ASU – ASU's online services environment – has been completely redesigned. Over the next five years this platform will be continuously improved with the goal of making it ever easier for students and faculty to understand and interact with the institution and mobilize all of the institution's available resources to achieve their goals.

Goal #1: Continue to improve eAdvisor to further enhance retention and graduation rates

Action Plan: ASU continues to make progress on a multi-year development project to integrate all of its student information systems into a single Web based experience that helps students organize their academic life. eAdvisor integrates a wide variety of ASU systems, including:

- the Degree Audit Requirement System
- ASU Degree Search
- the ASU Online Catalog
- the On-track/Off-track Reporting System
- the Academic Alert System
- the Current and Prospective Student Web Experiences

The eAdvisor System provides tools for students to monitor their current progress, to understand the impact of major changes, and gives them guidance on how to efficiently complete their degrees. It also provides tools for academic advisors and professors that give a better understanding of a student's strengths and weaknesses and provides early warning of impending academic difficulty.

Accomplished in FY2014	In FY2014, UTO made several enhancements to eAdvisor, including the new Build a Major Map (BAMM) tool, which replaces the manual process of creating, editing and approving undergraduate curriculum through graduation. ASU's Schedule of Classes / Course Catalog was enhanced to display enrollment capacity and enrollment deadlines and now clearly identifies ASU
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	Online courses vs. iCourses, the online component of courses for students attending classes on-campus.
Plan for FY2015	In FY2015, ASU will continue to improve and expand the capability of eAdvisor with plans that include enhancing BAMB and integrating course syllabi into ASU's Schedule of Classes / Course Catalog. In addition the expansion of eAdvisor for the transfer students in agreements such as MAPP/TAG will be put into play. The Classes/Catalog will now allow for faculty to display their course syllabus.

Goal #2: Implement and expand the mobile.asu.edu experience for key applications

Action Plan: ASU developed the first release of its mobile web page. The mobile version located at m.asu.edu can detect what mobile device is being used and redirect the visitor to a version that works optimally for their device. For web applications that require users to login a mobile version of the login page was created and also allows users to opt in to remember their user ID, eliminating typing time on revisits.

Accomplished in FY2014	ASU also release a mobile version of "My ASU" ASU's student and employee portal. New features such as the class schedule, book list and improved maps were added to My ASU mobile throughout the year. ASU developed an Android native app and deployed it to the Android marketplace.
Plan for FY2015	ASU has the technical capability to enhance its current ASU OS & Android mobile application. UTO will also work to improve GIO location features with Google's new API, improve class registration tools, and add a mobile version of class search and the course catalog. ASU is also engaged with those departments and colleges across the University that are already producing mobile versions of Web sites and applications in order to add these to the mobile list, including the ASU Online mobile site with links to course information.

Goal #3: Improve access to software applications by coordinating licensing and deploying new technologies to extend application services across the Internet.

Action Plan: As ASU faculty and students begin to rely increasingly on their own personal devices rather than University common computers; a new way of deploying application capability is needed. This new way replaces software installation on individual devices with software service deliver over the Web. Over the next five years, ASU will develop and extend this capability to its community and leverage the increased centralization of application server resources to optimize its software licensing expenditures while simultaneously making those software services available to the broadest possible segment of the community.

Accomplished in FY2014	In FY2014 ASU began further enhancements to evolve the student experience for current and potential students. My ASU enhancements for Fall 2014 include, prioritizing the Task box and consolidating many student services on a new
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	Campus Services tab. To better serve all students, ASU redesigned the financial aid box, and integrated My ASU with Blackboard Student Services. ASU also redesigned/personalized the My Employment box for faculty and staff.
Plan for FY2015	In FY2015, ASU will further enhance the My ASU experience for prospective students by implementing a page designed to engage and excite high school seniors about attending ASU. ASU will also improve My ASU for existing students by implementing a new My Health box, which is designed to create interest about the students' health, as well as present personalized information and educate them on available health services. ASU is also making improvements to students' calendars and scheduling options.

Goal #4: Advance re-design and use of the Web as a tool for learning, messaging and knowledge capture and dissemination

Action Plan: ASU's web projection, largely through My ASU, is the virtual projection of ASU, the online embodiment of "One University in Many Places." My ASU now provides personalized access to most of the academic and administrative processes of the University. ASU's online environment has moved beyond its "online brochure" roots to become the central point of deployment for new technology into the university community. In a process of gradual evolution over the course of the next several years, ASU's online environment will become ever more personalized and process oriented, supporting the self-service, administrative and academic needs of the ASU community.

The successful integration of ASU's new student administration and human resources systems are a foundational component for the new environment. My ASU has become the primary point of contact between ASU and its affiliates, providing a personalized link between the institution and each applicant, student, faculty or staff member. It provides each affiliate type with a highly customized and personalized experience that includes integrated interactive access to the information and services intrinsic to his or her role in the institution. Through a process of data-driven analysis and continuous improvement, My ASU will continue to evolve to incorporate new services and capabilities, provide more detailed, timely and personalized information, and increase the level of service to every member of the ASU community.

Accomplished in FY2014	The new My ASU, released in Fall 2008, has grown to be the most popular destination in the ASU website, now drawing more than 200,000 average hits per day. In FY2014, UTO made several enhancements to My ASU, including enhancements for prospective students, a redesigned and more personalized My Employment box for faculty and staff, a redesigned Finances/Financial Aid box, integration with Blackboard Student Services, and finalized Health areas in the interface.
Plan for FY2015	In FY2015, ASU will continue to improve and expand the capability of My ASU for students, faculty and staff, including a new experience for prospective students, integrations with the student calendar, and schedule improvements. In FY2014 ASU is creating a parent/Guest version of My ASU to allow students to grant appropriate access to view information and pay bills as necessary. This will also give Parents a personalized experience within ASU.

AREA #2: IT INFRASTRUCTURE

ASU seeks to create a flat, secure landscape that provides a consistently excellent technology experience no matter where in the world the user is. In a way, such an information environment can be the embodiment of the One University in Many Places that lies at the heart of the New American University vision. ASU strives to keep its IT infrastructure at the leading edge and ensure a highly available, low-latency, highly productive experience for all members of the ASU community.

Goal #1: Expand and enhance the High Performance Computing network across the entire enterprise to ensure access to HPC facilities from every ASU location

Action Plan: ASU believes that access to high performance computing will be an increasingly important utility for researchers in a broad variety of disciplines. ASU's strategy of converging its high performance computing investments centrally has successfully met most of the needs of ASU's research community while effectively consolidating the investment in hardware and expertise to produce maximal benefit. In order for this strategy to provide benefit across the University, it is essential that researchers throughout the community have high speed access to ASU high performance computing resources as well as a high speed gateway to high performance computing capabilities "in the cloud" through Internet2 and National Lambda Rail.

Accomplished in FY2014	In FY2014 to enhance the benefits of this strategy for the ASU community, A2C2 became a regional and national leader in diverse cyber technologies to power transformational research discoveries and practical innovations.
Plan for FY2015	In FY2105 A2C2 will partner with researchers, policy makers, and technology leaders to engage and solve the challenging problems that affect ASU, Arizona, the Southwest and our nation.

Goal #2: Consolidate computer & storage systems in a few physical locations dispersed within the Phoenix Metro area to ensure secure and continuous operation of the University's information systems

Action Plan: ASU is currently developing a plan to determine how best to reallocate its various hardware systems to realize improved system uptimes. ASU is also evaluating how best to upgrade these locations to ensure sufficient HVAC, UPS, Cooling, and Access Security. Network connectivity within the consolidated data centers will be behind firewalls, and data and storage will be separated. Connectivity between the consolidated data centers will be achieved via the University backbone infrastructure with a completion target of 2015.

Accomplished in FY2014	ASU has outsourced ASU's data centers to an externally hosted facility in the Phoenix metro area. ASU issued an RFP seeking a hosting partner that can
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	dramatically improve ASU's data center reliability, disaster recovery strategy and business continuity.
Plan for FY2015	ASU will work with the data center partners to maintain redundancy, monitor up-time, and seek cost-solutions for expanding our network services while consolidating costs

Goal #3: Continue to consolidate data and storage to improve reliability, security, and cost

Action Plan: In 2008-2009, as an application of the Concept of One, ASU continued two related projects; the first to consolidate servers within a single secure virtualized environment, the second to consolidate storage. These projects relieve departments and colleges of the administrative burden involved with the management of servers and storage. By creating a single yet redundant environment, computing cycles and storage can be provided much more efficiently with greater security and reliability.

The centrally managed system provides for high availability, disk-to-disk backup, improved performance, and scalability. ASU continues to transition both centrally managed and departmental servers and storage to the consolidated environment. ASU is consolidating servers at a rate of 35 a month and expects to consolidate the remaining 310-standalone units by Summer 2014. ASU's consolidated storage environment is now over 100 TB, providing redundant, secure, fully recoverable storage for 59 different units within ASU.

Once ASU has effectively consolidated 95% of its storage and server requirements, ASU will move from the Concept of One to the Concept of Zero by seeking a strategic partner to manage its consolidated services as part of a larger scale operation. ASU believes that virtualized server and storage farms operating at scales thousands of times larger than the University can achieve will emerge in the next five years. ASU expects such farms will provide computing and storage at the best cost/benefit ratio. ASU has transitioned to an externally hosted service as of FY2014.

Accomplished in FY2014	As of February 2014, the total number of raw storage is 1,713TB with 973TB available and 733TB currently in use. As of January 2014, the total number of virtualized servers reached 80% at 775 with a capacity for 900.
Plan for FY2015	In FY2015, ASU expects to have completed server virtualization with a ratio between 80-85%. ASU also plans to complete server simplification to reduce OS platform support in the ASU Data Center.

AREA #3: ADMINISTRATIVE EFFECTIVENESS

ASU's campuses share administrative systems that support the operations of the University. Two of the four major administrative systems—the Student Information System and the Human Resources Management System use PeopleSoft and were originally implemented as a combined system in FY 2007. This project also included major enhancements to the Data Warehouse, which consolidates information from many university databases in a form that is accessible for faculty and staff to use with a variety of reporting and analysis tools. Subsequently the Student Information System (SIS) and the Human Resources Management System (HRMS) were updated in FY 2013 and separated into two systems.

The two remaining legacy systems are:

- ASU's Financial Information System (Advantage), which facilitates management of University finances and financial records.
- ASU's Research Administration System (COEUS), which facilitates the management of University research proposals, contracts and awards.

There are a variety of other minor administrative systems that support various University business processes (e.g. budgeting, facilities maintenance, Sun Card, etc.); all are operated centrally. Over the next five years, ASU will seek to continuously improve integration of these service offerings with MyASU and look for opportunities to utilize software-as-service offerings as replacements for ASU run services in those areas where the scale, quality and cost of those offerings will provide advantage to ASU.

Goal #1: Ensure ongoing viability of financial transaction processing and improve the quality of financial intelligence

Action Plan: The [Moran Report on IT Collaboration](#) from June 2007, commissioned by ABOR to review information technology at each of the Regent's Universities, found that all three universities would need a replacement financial system within the next five years. ASU's existing system, Advantage, is its last remaining mainframe application, and transitioning to a new system will eliminate the need for a mainframe. Replacing Advantage will require an intensive development project to translate ASU's general ledger and other financial records into a new system and will require adaptation of ASU's Data Warehouse.

Accomplished in FY2014	ASU continued to use a mainframe system in the Arizona Department of Administration Data Center to host ASU's Advantage system. Joint activities between ASU and the Department of Administration applied system updates, exercised disaster recovery and identified ongoing support models. Additionally, ASU financial services and technology staff engaged in system reviews to identify possible systems to replace Advantage.
Plan for FY2015	While ASU originally expected to begin work to replace its financial system as early as 2010, the fiscal climate and the limited number of possible system replacements have delayed that projection. ASU does not expect to begin a financial system replacement until the second half of FY2015 or later.

Goal #2: Increase the efficiency of the proposal development, pre-award, and post-award management sponsored research activity

Action Plan: The Moran Report identified opportunities for improvement in the Universities' sponsored research management processes and systems. Management of sponsored research is mainly a manual process at all three campuses today, and undocumented workflows account for unidentified cost and resource problems.

Accomplished in FY2014	In FY2009, a University-working group made up of faculty and administrators recommended the replacement of ASU's research administration system. In 2013, an RFP was released, responses evaluated and the Huron Click Portal system was selected. This vendor offered the most comprehensive, flexible and cost effective system available.
Plan for FY2015	Thus far, the Conflict of Interest, IRB and Master Store (key integration module) has been implemented with Grants - Pre-award planned for launch in Spring 2014. Implementation of the Grants - Post-award module will begin in 2014.

Goal #3: Maintain the currency of the enterprise resource planning system

Action Plan: In order to maintain the currency of its new human resources and student information systems as well as begin to take advantage of the flexibility of emerging Web based service architectures, ASU anticipates upgrading its PeopleSoft system on a schedule to remain supported by Oracle. The Student Information System will remain on version 9.0 and use Oracle's continuous delivery model. ASU will upgrade the Human Resources system from version 9.0 to version 9.2, which was released in spring of 2013.

Accomplished in FY2014	<p>ASU's PeopleSoft environments use version 9.0 and underwent 3 upgrade cycles to remain on the current regulatory and patch levels. The environment was upgraded to use a new PeopleTools version (8.53) that supports more up-to-date technical capabilities. Planning for the next major upgrade of the PeopleSoft HR to version 9.2 began.</p> <p>Kenexa's BrassRing, Software as a Service (SaaS), replaced the Talent Acquisition Manager (TAM) functions of PeopleSoft HR. It supports staff and student employee recruitment. This implementation includes new data warehouse content for employee recruitment.</p> <p>ASU issued, evaluated and awarded a RFP for technical tools to present PeopleSoft functions on mobile devices. Other projects adjusted and extended PeopleSoft to adapt to the University initiatives, policy changes and improved processes and data security.</p>
Plan for FY2015	<p>Upgrade the PeopleSoft HR system to version 9.2.</p> <p>Add integrations from PeopleSoft to systems used for service improvement</p> <ul style="list-style-type: none"> • Salesforce • ServiceNow <p>Implement mobile capabilities for PeopleSoft functions.</p> <p>Adapt and enhance integrations with MyASU.</p>

Goal #4: Reduce the cost of new technology deployment and provide tools to increase process performance and collaboration

Action Plan: ASU currently has a variety of strategies deployed throughout the enterprise for the management and maintenance of distributed desktops and laptops. ASU believes significant advantage can be obtained through the application of the Concept of One to this area. In FY2015 ASU will continue to pilot available deployment technologies and techniques for seamless turnover of desktop and local application delivery. Based on the results of this study, ASU expects to invest in a coordinated set of new streaming and virtualization technologies with the goal of reducing the time for staff and faculty members to get information and collaborate

Accomplished in FY2014	In FY2014 ASU customized My ASU for functionality and ease of use, while also supporting the new Service Initiative. To better serve all students, ASU redesigned the financial aid box and integrated My ASU with Blackboard Student Services. ASU also redesigned/personalized the My Employment box for faculty and staff.
Plan for FY2015	ASU is continually improving My ASU for existing Students by implementing crowd-sourced features relevant to our student population. Some enhancements could include a new My Health box designed to create interest about students' health, as well as present personalized information and educate students on available health services. ASU is also making improvements to scheduling and students' calendars.

Goal # 5: Develop and implement an IT planning and governance process to facilitate project prioritization, streamline project execution, and provide project visibility through reports and online tracking and performance measurement to the University community.

Action Plan: The UTO Planning and Program Management Office provides leadership for all facets of Information Technology (IT) planning and program management including strategic planning, fiscal planning, prioritization and execution of projects. Goals of the PPMO include:

- Coordinate with UTO and campus functional leadership to understand and prioritize IT initiatives;
- Establish and maintain a robust IT governance process internally and across organizations;
- Evaluate, implement and maintain a project management framework leveraging industry best-practices to build policies, procedures, and key performance metrics for IT project performance;
- Coordinate IT related activities across initiatives, including developing and providing consistent tracking and reporting tools and providing visibility into new and existing projects;
- Implement a robust time-tracking solution for the UTO organization;
- Leverage state-of-the-art Project & Portfolio Management software solutions & tools;
- Ensure all IT projects are appropriately documented, including developing and evaluating the business case;

- Evaluate, and maintain a resource management methodology;
- Develop an effective project management resource pool; mentor and train staff across the organization on project management; effectively communicate priorities, status and risks;
- Maintain the IT project portfolio, dashboards and reports, and project artifacts;
- Maintain the IT Strategic Plan and ensure that goals align with University strategies

Accomplished in FY2014	<p>In FY2013, an enterprise project management and planning tool, Planview, was implemented in UTO to support project planning, prioritization, tracking, resource management, and project visibility through reports and dashboards. Standard project management methods and techniques were implemented based on industry best practices. A total of 89% of project managers in the PPMO have received their Project Management Professional (PMP) certifications, a respected credential in the project management community of practice worldwide.</p> <p>Additional accomplishments include;</p> <ul style="list-style-type: none"> • 180 projects were started and completed throughout the year representing resulting in average project duration of 63 days; average effort 30 business days per project. . • Eight ASU departments and colleges were provided access, training, and mentoring on the use of the Planview enterprise tool, and project management methods tools and techniques representing 150 users. • The total number of Planview licenses distributed now exceeds 600. • The Quality Assurance team added additional testing resources and conducted testing on 2000+ applications and projects. • Project governance was developed for project portfolios in the CFO, Provost, and CIO areas to prioritize and align projects and resources with institutional goals. • A Data Governance function was established to develop data policy and data management processes.
Plan for FY2015	<p>In FY2015, the PPMO will continue to refine processes and procedures around portfolio planning, IT governance, project management, and reporting.</p> <p>Additional goals include;</p> <ul style="list-style-type: none"> • Extend Planview licenses, and provide project management training and support, to additional colleges and departments that wish to use it. • Refine and integrate project management, service management, and data governance and related tools into UTO procedures. • Integrate financial planning and tracking into project planning and project management processes. • Project dedicated project management resources to colleges and departments that request it. • Establish project management communities of practices across ASU and the ABOR universities in Arizona.

Goal #6: Continue to improve customer service to increase the productivity of students, faculty and staff

Action Plan: ASU is using an approach that combines data driven decisions, industry best practices and cross-departmental collaboration to measure, improve and sustain customer service. An enterprise- wide CRM, which will track and provide visibility into interactions with students across the various functional areas throughout the student life cycle, is being implemented using Salesforce, an industry-leader in CRM. Being able to track all interactions for a student will provide a holistic view of the individual, as well as allow different departments to easily collaborate on complex issues a student might have. Salesforce also provides tools that will allow more self-service for students, such as a consolidated Knowledge Base integrated with Case Management.

Additionally, the University is implementing an Information Technology Service Management (ITSM) program, to systematically catalog, support and improve the health of its centralized IT resources, using the widely recognized Information Technology Infrastructure Library (ITIL) framework. The ITSM program will allow the University to better manage the key IT services that students, faculty and staff rely on, with an end goal of increasing reliability and availability.

Finally, the University is working to implement a Shared Services Contact Center (SSCC), which would provide first tier resolution for a broad number of areas at ASU, or provide caretaker service in cases where the SSCC is not able to provide resolution. The SSCC would initially co-exist with the Blackboard Student Services (BbSS) Helpdesk that provides first tier support for the University Technology Office, Financial Aid and Human Resources, and then would expand to other areas of the University.

Accomplished in FY2014	<p>Using Salesforce, a knowledge base populated with cross- functional articles has been deployed using MyASU, with the end result of providing context and time-sensitive self-help to students. Metrics built into the Knowledge Base tool will drive the maintenance of the articles and the roadmap for the tool itself.</p> <p>Between ASU staff and the Blackboard Student Services (BbSS), ASU has brought resolution to over 400,000 issues submitted via phone, chat, email and web submissions.</p> <p>The SSCC project team has started the investigation and evaluation of tools to implement the SSCC, and to increase the current capacity of ASU Information Center until the SSCC is ready to be brought online.</p> <p>The University Technology Office (UTO) has established an ITSM program and has appointed an experienced Director of Continuous Service Improvement. 160 UTO staff (50%) has received training on the ITIL Framework, with 30% (102) receiving ITIL Foundations certification. ServiceNow has been selected as the tool to manage our IT services and the various ITIL processes necessary to support those services.</p>
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<p>Plan for FY2015</p>	<p>Expand the use of Salesforce by:</p> <ol style="list-style-type: none"> (1) Implementing undergraduate recruitment, in addition to the graduate recruitment currently in SF (2) Onboarding more units to provide information for the Knowledge Base (3) Implementing case management for prospective and current students (4) Providing reports on the effectiveness of the Knowledge Base and Case Management <p>Continue ITSM program rollout including:</p> <ol style="list-style-type: none"> (1) Implementation of Incident Management and Change Management processes, and a Knowledge Base for IT related issues. (2) Implementation of an IT services portfolio and catalog (3) Implementation of self-service portals, enabling end-users to access knowledge base information, request catalog items, report issues and view status and history (4) Increased reporting capabilities including automated dashboards (5) Integrations to existing IT systems such as monitoring tools (6) Implementation of Continual Service Reviews and governance processes <p>Evaluate and develop plan for SSCC implementation including:</p> <ol style="list-style-type: none"> (1) Selection of tools and technology (2) Hiring of key staff (3) Securing space (4) Onboarding more units to the SSCC <p>Integrate Salesforce, ITSM, BbSS and SSCC case management and knowledge base systems to provide a better experience for ASU faculty, staff, students and parents.</p>
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Goal #7: Support data driven decision-making throughout the institution by making institutional data and analysis more available and actionable through a consistent interface.

Action Plan: Prior to the adoption of ASU's business intelligence strategy, institutional access to data was primarily report driven with a strong emphasis on the proliferation of expert users of individual administrative transaction systems. The production of these reports, many of them central to core business processes, required the repeated action of data experts to support the weekly creation of these reports. As a result, access to information was expensive, limited, and not uniform.

Beginning in FY2008, ASU developed a business intelligence strategy based on the use of a comprehensive data warehouse that contains all institutional data accessed through two standardized mechanisms: My Reports and the ASU Dashboards.

- My Reports provides expert users with Ad Hoc access to institutional data. It allows users to do just in time analysis of data from every institutional system. It also allows easy analysis across systems and allows users to save and share queries to facilitate information sharing between units.
- The ASU Dashboards provide users throughout the University community, from senior administrators to administrative professionals, with simplified access to data and analysis at

several levels of organization. The data is collected in specific ways to provide status information on key performance indicators and provide linkage to specific business processes in support of defined objectives.

Currently in process, is a project to implement the Microsoft Business Intelligence Tool Stack that will provide enhanced dashboard and report development and access capabilities. Current dashboard and reporting technology will be phased out over time, migrating existing dashboards and reports to the new platform. This will be an ongoing effort over the next 2 years. Training of key individuals in the new tools has begun and will continue as the implementation into a production environment takes place. Production implementation of the tool stack and the new dashboard sites has an anticipated completion in Spring 2014. Conversion of existing dashboards and reports will take place over the next 5 years.

Accomplished in FY2014	<p>In FY2014, ASU initiated a project to replace the existing dashboard toolset with the Microsoft Business Intelligence Tool Stack. Implementation of the complete set of tools, including the tools to present the dashboards is scheduled for Spring 2014.</p> <p>New dashboards created include</p> <p>Updates to Retention</p> <ul style="list-style-type: none"> • Major upgrade to Transfer Pathways • Planview Dashboard • ABOR Dashboard • Admissions Dashboard • Various Training Compliance Dashboards
Plan for FY2015	<p>Over the next five years, ASU will continue to broaden the toolset available to support ASU's business processes and continuously improve the usability of the individual tools.</p> <ul style="list-style-type: none"> • Implement the Microsoft Business Intelligence Tool Stack • Begin converting existing dashboards and reports to the new platform • Train staff on using the new tools • Continue to develop new dashboards to serve the University's needs

Goal #8: Build and retain a talented IT workforce.

Action Plan: With the realignment of UTO staff into areas providing critical IT support to strategic initiatives and a shortage of funds to increase staffing capacities, we must look for ways to broaden staff knowledge and skills and leverage the minimal amount of investment we have available for training and development opportunities.

Accomplished in FY2014	<p>UTO continues to use job families developed for technology related positions, which reflect the current function, duties and responsibilities as well as applicability to departmental operations/needs. The Performance Management Program remains critical to the development of UTO staff through 1:1 coaching and feedback sessions with annual review of employees' performance and established goals.</p>
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	A travel/training budget was developed to provide opportunities to expand employee knowledge, enabling new technology/process discovery and application within UTO's current environment.
Plan for FY2015	A professional development career path system is in place to support staff advancement opportunities. Working with university Human Resources and aligned with state salary guidelines, processes and procedures, this system will be developed to help staff grow and advance professionally and achieve higher level positions, both within technical and non-technical tracks. Utilizing the current performance management system, each supervisor/employee will establish a Performance Development Plan as a guide to achieve their desired career path goals, both short and long term. UTO's Travel/Training budget will be enhanced and distributed at the AVP level to provide for continued development opportunities for advancement of technology.

AREA #4: Risk Management

A university is a place where faculty and students come together to learn and share ideas in a free and open environment. This tradition of openness and access can sometimes seem at odds with the need to create an electronic information system that protects privacy and intellectual property and prevents the unauthorized or illicit use of university resources.

However, the need to secure intellectual property and personal data and protect high availability systems from downtime incurred from security breaches is a fiduciary duty of the university and requires that continual attention to information security be a strong part of the university's culture. In so doing, we must make sure to analyze the value of the ASU resources before setting an appropriate risk-based course for security initiatives.

Goal #1: Maintain a strong risk management program through a continuous cycle of assessing and mitigating potential risks

Action Plan: ASU will continue to evaluate risk and incorporate plans to reduce risk into our continuous improvement cycle in the risk management program as well as the information security program. Using this approach, the university works in partnership with external firms to identify key risk areas and then define projects designed to mitigate those risks. Taking measures to secure sensitive data and ensure availability of services that support core business functions are critical pillars of these programs...

Accomplished in FY2014	In FY2014, ASU engaged in a number of initiatives to improve ASU's overall risk posture, including refreshing the information security plan through partnership with an external security firm; bringing a security focus to university contracts, and launching a service management initiative to bring structure to enterprise services, systems, and university initiatives.
Plan for FY2015	In FY2015, ASU will continue executing on the Information Security Program as well as the service management initiative. The university plans to continue implementing security solutions that will focus on risk reduction while allowing for non-intrusive and more proactive security activities. The service management initiative is a multi-year program scheduled for initial release of key features this fiscal year.

Goal #2: Improve the IT Service Model (reinventing IT services based on industry best practices).

Action Plan #1: Promoting Scale in Existing Services

In the coming year UTO will look for opportunities to consolidate more common infrastructure and support capabilities to meet local service expectations and recover true costs. Working with the university community we will define and deliver a bundle of "common good services" to campus units to leverage licensing and volume procurements. Standards and measurements will focus on

service quality, efficiency, staff productivity and development, and best practice adoption. A funding model will be developed representing the true cost of IT services to the university.

Action Plan #2: Reduce Applications Complexity

UTO will work to centralize software distribution by developing and maintaining a central portal for all enterprise- wide software application licenses that can easily be searched, and promote efficient installation and automatic downloads of critical software upgrades. Another initiative to reduce complexity of applications is to establish an architecture review board to review project proposals and look for potential reuse, low cost alternatives, and opportunities for application simplicity.

Action Plan #3: Deploy Staff to Best Use

UTO will explore fractional staff pool methods of sharing IT resources across the institution to develop a framework for leveraging critical IT talent and skills, and will partner with local IT units to develop flexible supervisory plans to co-manage IT personnel, thus maximizing professional development and training funds available. Additionally, an IT career path will be developed to achieve pay and title parity across the university for greater flexibility in redeploying staff to meet critical needs.

Action Plan #4: Align the Project Portfolio

To improve IT planning and project management processes, UTO will develop a coordinated approach for allocating funding and IT personnel time across all proposed IT projects including a governance structure for prioritizing projects and aligning projects with institutional goals.

Standard business case templates and a common repository of best practices will provide centrally located and off-campus IT personnel with resources that can be easily utilized and centrally stored and managed. Executive dashboards and reports will convey project status and performance management metrics to the university community and allow expanded access into project deliverables and schedules.

Action Plan #5: Surface Emerging Requirements

UTO will develop methods for soliciting and fostering campus community feedback and suggestions for improving technologies and exploring innovative and creative technology solutions.

<p>Accomplished in FY2014</p>	<p>UTO has improved and streamlined project governance and resource utilization across project portfolios. Key initiatives include:</p> <ul style="list-style-type: none"> • Integrated project portfolio governance with data governance, and IT Service Management governance processes to improve overall definition, delivery, and support of IT services in UTO. • Incorporated essential security requirements into the project portfolio governance process, including project security reviews. • Worked with IT Leadership Council to promote centralized software licensing, distribution, and support to leverage economies of scale for cost and support services. • Participated in Intenet2 Net+ Service offerings to promote centralized software licensing, distribution, and support.
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Plan for FY2015	<p>UTO will work to improve and streamline project governance and resource utilization across project portfolios. Additional plans for FY2015 include;</p> <ul style="list-style-type: none"> • Expand project portfolio governance with data governance, and IT Service Management governance processes to improve overall definition, delivery, and support of IT services in UTO. • Work with IT Leadership Council to promote centralized software licensing, distribution, and support to leverage economies of scale for cost and support services. • Explore additional Internet2 Net+ Service offerings to promote centralized software licensing, distribution, and support. • Through deployment of IT Service Management tools and methods, develop the Service Catalog for UTO including service definitions, support levels, and costs. • Complete development of a data governance plan and operational processes for data management.

AREA #5: ACADEMIC TECHNOLOGY

ASU provides resources, technical assistance, and equipment to help faculty, staff, and students with quality teaching and learning. These support services include:

- Learning Management Systems
- Classroom technology systems
- Digital teaching assets infrastructure
- Common computing resources
- Distance education support
- Educational resources training
- Instructional Design
- Education Technology Studio

To date, the technology initiatives that had the most success at universities have been enhancements rather than transformations. For example, email is a faster form of postal mail, a computer projector is an enhanced overhead projector, and MS Word is a replacement for the typewriter. In introducing these innovations, the factors limiting their use were typically the expense, complexity and limited capability of the underlying technology. In this phase of development, universities could be said to be technology poor, and that the degree to which capabilities could be enhanced was limited primarily by the amount of investment in the development and deployment of the underlying technologies. Over the past five years, this has changed fundamentally.

In the present climate, ASU finds itself technology rich but practice poor. With the explosion of capability brought about by the exponential growth of consumer technologies provided at scale, e.g. Google's Apps for Education, Apple's iTunesU, Twitter, Amazon's Kindle and Facebook, ASU now has access to a broad array of leading edge capabilities whose potential is only beginning to be tapped by the academic enterprise.

In addition to these software-as-service offerings, nearly all ASU students now bring personal computing technology with them to school with capabilities that exceed the combined investment by the University on common computing technology by an order of magnitude or more. This sudden increase in compute availability is also largely untapped. To harness these underutilized resources, ASU must develop effective ways to achieve transformational technology adoption, supporting faculty in the development and deployment of technology solutions that significantly redesigns elements of the academic enterprise.

To achieve this next level of technology adoption will require a more effective partnership between academic leaders to identify the opportunities and eliminate the obstacles to applying these incredible new and rapidly evolving capabilities to the core education mission.

Goal #1: Advance the implementation of the ASU 1:1 Mobile Initiative

Action Plan: As more and more of ASU’s students bring cell phones, notebook computers and personal digital assistants to school, the computing landscape has begun to change. Increasingly, instead of common computing labs, students expect to be able to use their personal technology as important tools in their education. Over time, we anticipate this will mean a shift in how ASU addresses Academic Technology, specifically the emphasis we place on deploying common computers versus investments made to support 1:1 devices, such as Web based application deployment, higher speed wireless networks, and mobile device application deployment. Over the next five years, ASU expects see the balance of support shift away from common computing toward this more mobile support.

Accomplished in FY2014	Integrated ASU Blackboard LMS with the Blackboard Mobile Learn app. Published 'Sun Devils' Athletics app. Developed WebSpark - mobile friendly (responsive) starter theme for ASU Drupal sites. Published new mobile friendly ASU home page. Developed mobile-friendly websites for departments (e.g. Continuing Education, Sundevils Count)
Plan for FY2015	Upgrade MyASU, Class Search, eAdvisor, Campus Maps and Degree Search to be mobile friendly (responsive websites). Update campus maps with way finding and overlay maps. Publish new updated iOS and Android ASU Mobile apps. Integrate PeopleMobile to make all PeopleSoft pages mobile friendly. Publish new website with mobile strategy and mobile development resources.

Goal #2: Ubiquitous classroom mediation

Action Plan: In FY2009, ASU began a \$2.5 million dollar project to extend basic classroom mediation to more than 100 more University classrooms. The long-term goal of this effort is to ensure that all, or nearly all, University classrooms are equipped with at least:

- A multimedia projector and screen
- A stereo speaker system
- A basic instruction station
- A media capture capability including a microphone and camera

Accomplished in FY2014	Common Computing will continue to provide several services, including 1:1 space in place of antiquated equipment, ASU’s Common Image, and an ongoing technology refresh program for ASU classrooms and computing sites to maintain current University standards.
Plan for FY2015	Common Computing plans include improving classroom support services through the analysis of current support, processes and CRM tickets; redesigning ASU’s equipment circulation program to focus solely on faculty and the 1:1 program; providing support for ASU’s campus-wide digital signage initiative; engineering and developing Virtual Desktop technologies for sites and classrooms; creating a single video conferencing solution across the University, and continuing to develop the Technology Consultant Student Training program.

Goal #3: Implement and promote an Education Technology Studio

In FY 2014, ASU will open an Education Technology Studio in the central Computing Commons Building on the Tempe campus. The goal is raising the overall quality of the in-person, hybrid/blended, and online courses offered by educators, in a cost-effective manner, by serving as a physical aggregation for academic technology.

Action Plan: The Studio aims to achieve its goal by blending leading instructional designers, media professionals, training specialists, learning scientists, and software developers to assist with the design, delivery, assessment outcomes of quality in-person, blended/hybrid and online courses. This centralized Studio facilitates faculty in building quality courses that achieve positive, sustainable and scalable student learning outcomes that maximize student success.

Accomplished in FY2014	The Educational Technology Studio has been vetted and budgeted for FY2014. Additionally, space allocations on a centrally located building on the Tempe campus have been obtained. The space and construction of the ETS will commence at the start of the Spring semester.
Plan for FY2015	The Educational Technology Studio (ETS) will monitor usage by faculty over the course of the Spring semester. This initial measure will be the impetus of a baseline for activity around the ETS, allow for course corrections if needed, and give indication of the viability of ETS's on other campuses.

AREA #6: RESEARCH COMPUTING

The role and importance of information technology in support of research is growing rapidly at ASU and throughout the research community at large. From its roots in the service of research in engineering and the physical sciences, research computing's importance has grown in other areas as well, either as a fundamental research tool (e.g., Genomics and the Digital Humanities) or as a mechanism to communicate results and foster collaboration between the members of a research community.

Driven by the needs of its diverse research communities, ASU has invested in advanced computing, next-generation networking and high capacity storage to better support technology intensive research. For example, in 2013 the ASU Advanced Computer Center (A2C2) delivered a 1.5 PB capable storage system, a 450 TB fast disk system, and 10 GB/s link to the research network. In September 2013, faculty and PIs of sponsored research grants were surveyed on their research data practices and needs. The University Technology Office, the Office of Knowledge Enterprise Development, the College of Liberal Arts and Sciences, and the Fulton School of Engineering have continued to support the delivery of enhanced computational and storage capabilities for researchers across the institution.

Goal: To expand the central provisioning of "cycles, bytes, bandwidth and expertise," in support of sponsored research throughout the ASU research community.

Action Plan: In support of this goal, ASU expects to continue consolidation of advanced computing system management where practical and offer system management services where it is not; continue to provide researchers with scalable access to computing cycles and storage bytes; extend the high-speed research network to provide access from anywhere at the University; and expand the staff of professionals who can provide a full range of high performance computing services.

AREA #7: STRATEGIC TECHNOLOGY ALLIANCES

Ally is not just another word for vendor. Strategic Alliance defines a new relationship between ASU and its most important technology suppliers, one that recognizes the needs and objectives of both parties. ASU needs a working relationship with private providers whose Core business is to deliver reliable, high-quality, cost effective technology services that track the state-of-the-art.

In order for such a relationship to be attractive to a commercial partner, the business opportunity must be:

- Central to the firm's Core business strategy
- Of sufficient magnitude to be strategically important
- Of sufficient duration to warrant the capital investments needed to initiate, convert, or upgrade the technologies necessary to continue delivering and improving the service

The benefits of Strategic Alliance to ASU are threefold:

- *First*, ASU gains the ability to focus. Strategic Alliance allows ASU to manage its technology Context at a higher level, requiring less direct involvement by ASU personnel and leaving more time, talent and resources for the Core mission.
- *Second*, the longer-term nature of the alliance relationship allows ASU to benefit from technology investments made by private enterprise. Longer term agreements allow private firms to take greater risk on behalf of ASU because the relationship recognizes the need for a longer time horizon to allow firms to recoup value, thus allowing ASU to more effectively monetize its future.
- *Third*, by working closely with a set of trusted allies, ASU is able to benefit from the competitive position of their allies, allowing ASU's technology platform to progress at the rate of technical evolution.

Through new relationships with industry leaders like Google, Apple, Adobe, Dell, Canon, CedarCrestone, CISCO, Oracle, and Qwest, ASU has accelerated its technological progress and made new, leading edge services available to its community more quickly and less expensively than previously possible.

During the next five years, ASU expects to continue to expand its current partnerships and create new alliances where benefit is apparent for both parties. ASU will seek to align with its strategic partners and develop relationships with core providers of technologies where both parties recognize the same objective and needs. This will allow ASU to manage its technology context at a higher level, requiring less direct involvement by ASU personnel and resulting in a more cost effective result while maintaining a state-of-the-art technology environment.

Goal: Identify opportunities to replace the direct provisioning of information services with externally provided services operating at larger scales.

Action Plan #1: ASU currently obtains a variety of services from technology allies, including converged network services, rich media distribution capability, Web delivered productivity applications, student email and calendaring, and externally hosted administrative applications, among others. Over the next five years, ASU expects to continue to expand its relationships with its current allies and to profit from their superior rates of technological innovation and their massive economies of scale.

INFORMATION SECURITY OFFICE PROGRAM AND PLAN



Information Security Program & Plan

2014 – 2018

INTRODUCTION

Arizona State University is committed to preserving the availability, confidentiality, and integrity of its information resources while preserving and nurturing the open information-sharing requirements of its academic culture. ASU's Information Security Program has an overarching governance structure designed to address the substantial risks the University faces by continuing to enhance the security of the electronic computing environment.

The strategy of the program has three pillars beyond the overall governance construct including security awareness, information assurance and incident response. Continual training helps ensure that each member of the ASU community understands their role in securing ASU's information resources. Advancing proactive protections through information assurance as well as enhancing reactive measures including incident response protocols are also critical components of the program.

Continual improvements to ASU's security infrastructure and processes are necessary to proactively respond to increasing cyber-security threats.

INFORMATION SECURITY MISSION

ASU's Information Security Office is committed to preserving the confidentiality, availability, and integrity of ASU's information resources while preserving and nurturing the open information-sharing requirements of its academic culture.

2014 INFORMATION SECURITY OBJECTIVES

While the continuing information security program is designed to pursue a number of previously established objectives, the following objectives are a primary focus for this coming year.

- **Objective 1:** Embed information security into the culture of ASU
- **Objective 2:** Maintain a strong risk management program
- **Objective 3:** Ensure alignment of the information security program to the University's mission
- **Objective 4:** Increase visibility into the University's security posture

Information Security Program & Plan

2014 – 2018

ISO PERFORMANCE METRICS AND TARGET GOALS

ASU is tracking the following metrics to assess its progress in pursuing the strategic goals outlined in this plan. Each of these indicators is listed in the table below together with an assessment of ASU's current performance and its five-year target for that metric

IT Strategic Area	Goal	IT Metric	Current Progress	Target 2018
Information Security	Embed information security into the culture of ASU	% Faculty and staff trained in FY2014.	65%	90%
	Maintain a strong risk management program	% Department or unit participation in periodic Risk Assessment Corrective Action plan	86%	100%
	Ensure alignment of the information security program to the University's Mission	% Projects implemented with security reviews.	91%	100%

INFORMATION SECURITY ACTION PLANS

A university is a place where people come together to learn and share ideas in a flexible and open environment. This tradition of openness and access can sometimes seem at odds with the need to create an electronic information system that protects privacy and intellectual property and prevents the unauthorized or illicit use of university resources. However, the need to secure intellectual property and sensitive data and protect high availability systems from downtime incurred from security breaches is a fiduciary duty of the university and requires that continual attention to information security be a strong part of the University's culture. In so doing, the University has established a risk-based approach to security initiative.

Objective 1: Embed information security into the culture of ASU

Description: Information security awareness is a university-wide effort and is the cornerstone of the information security program. Because any person or system that connects to a network resource can be used as an attack vector, it is essential that the members of the University community be aware of privacy and security risks, knowing what steps to take to protect university assets and themselves. ASU offers a series of training and awareness campaigns throughout the year including an annual university-wide information security-training course to increase the level of awareness of the ASU community.

Information Security Program & Plan

2014 – 2018

Accomplished in FY2014	ASU continued to maintain a well-established information security awareness program while enhancing the training program for developers. A compliance dashboard enabled university executives to monitor training compliance for the university-wide information security-training course.
Plan for FY2015	ASU will enhance its information security training program with an emphasis on ensuring that content is current and appropriate. New employee training will be redesigned and compliance training programs will be refreshed. ASU plans to augment existing programs with targeted security communications and periodic video segments. A compliance dashboard is planned for the 2014 training.

Objective 2: Maintain a strong risk management program

Description: ASU continually assesses its risk-based approach to information security. To augment the internal university-wide risk assessment process, ASU partners with external security firms to help identify key risk areas based on emerging threats and then define projects designed to mitigate those risks. Taking measures to maintain confidentiality, integrity and availability of ASU's sensitive data is of critical importance to ASU and a key component of the University's IT Risk Management Program.

Accomplished in FY2014	ASU engaged in a number of initiatives to improve ASU's overall risk posture, including making laptop and desktop encryption solutions available to the university community, leverage partners in developing a strategy to inventory sensitive data on central file systems prior to further protection or removal, continuing to improve ASU's web application scanning solutions, communicating mobile device security recommendations, enhancing the network security infrastructure, and embarking on an IT-wide service management project at ASU.
Plan for FY2015	ASU will continue implementing solutions based on our risk-based approach to securing ASU's information resources. Additionally, this year ASU plans to continue the IT service management initiative and conduct the periodic university-wide internal risk assessment.

Objective 3: Ensure alignment of the information security program to the University's mission

Description: ASU is continually improving the security infrastructure to support the University's mission and current initiatives. The University community has embraced what is known as the "secure from the start" initiative where security is a critical component of the design of emerging systems and business process. We are increasingly integrating access control with system and application level processes to improve information security and privacy protection as well as provide more efficient operations. One planned outcome of the enhanced integration is to improve incident response and reduce the number of service disruptions. A benefit of this integrated architectural approach will be close alignment with the University's service initiatives through a deeper integration of the various services presented to ASU students, faculty and staff; a more personalized presentation of those services.

Information Security Program & Plan

2014 – 2018

Accomplished in FY2014	ASU completed a set of comprehensive security changes in support of the University mission, including enhanced incident response protocols, instituting formal security reviews in concert with project architectural reviews, and revising core acceptable use and technology policies.
Plan for FY2015	ASU plans to continue to make substantial improvements to the security infrastructure by supporting the new University service and risk management initiatives while continuing to enhance security for existing systems and business processes. ASU takes a defense-in-depth approach and has plans to improve each layer of our technology infrastructure.

Objective 4: Increase visibility into the University's security posture

Description: ASU is developing a comprehensive monitoring and management framework to offer improved visibility, or situational awareness, to support our defense-in-depth approach to information security. This framework includes incremental steps to improve visibility across the network and systems infrastructure to support proactive event and reactive incident response measures. Initiatives in this area improve our defensive layer and aid in detection and prevention against malicious activities including cyber-security attacks.

Accomplished in FY2014	ASU made significant progress with network border/firewall improvements, correlated analysis and network segmentation, to add to the previous year's success in improving network controls. Significant investments were made in infrastructure technologies to lay the foundation for integrated system visibility, a key component of improved situational awareness.
Plan for FY2015	ASU plans to continue to improve the ever-expanding management framework to more effectively and efficiently respond to threats and reduce security risks across the University infrastructure. Specific focus will be given to enhancing our event correlation capabilities, allowing the University to improve detection and response to increasing cyber-security threats.

CONCLUSION

Rapid, unpredictable technological innovation is the hallmark of our age; therefore, we can be sure that any five-year technology projection is subject to change. While the initiatives outlined above represent ASU's best projection of the principal technology directions it will pursue in the coming years, it is almost certain that some as yet unforeseen and disruptive technology will emerge during that period that will cause our plans to change.

The implementation of this strategic plan will be by several means: 1) the University Technology Office will work with the ASU Executive Committee and the ASU Office of Budget and Planning to integrate this plan with the University's strategic plan and University budgets; 2) UTO will work with the Executive Committee, the Office of the Provost, and the members of the Faculty Technology Advisory Committee to promote and review IT projects and priorities; and 3) UTO will continuously monitor and assess ASU's various technology initiatives to ensure ongoing alignment with University objectives.

Maintenance and ongoing support of the IT strategic plan, along with data collection, analysis, and reporting of the planned performance metrics will be performed by the "Planning and Program Management Office" (PPMO) within the University Technology Office. For further information about progress reports, measures, tools, or methods please contact Deborah Whitten (Deborah.whitten@asu.edu or 480-727-0050).

APPENDIX



APPENDIX

ASU PERFORMANCE METRICS AND TARGET GOALS BY STRATEGIC AREA

ASU is tracking the following metrics to assess its progress in pursuing the strategic goals outlined in this plan. Each of these indicators is listed in the table below together with an assessment of ASU's current performance and its five-year target for that metric

IT STRATEGIC AREA	GOAL	IT METRIC	CURRENT PROGRESS	TARGET 2018
Area #1: Student Learning and Success	Goal #1: Continue to improve eAdvisor to further enhance retention and graduation rates	% Freshmen who return to the University in their sophomore year (retention rate)	84%	90%
	Goal #2: Implement and expand the mobile.asu.edu experience for key applications	% Undergraduate students who actively use eAdvisor tools to track their degree progress	68.2%	80%
	Goal #3: Improve access to software applications by coordinating licensing and deploying new technologies to extend application services across the Internet	% Students that use MyASU on a daily basis	96.7%	95%
	Goal #4: Advance re-design and use of the Web as a tool for learning, messaging and knowledge capture and dissemination	% Undergraduate students using DARS to identify unmet requirements	96.1%	95%

APPENDIX

ASU PERFORMANCE METRICS AND TARGET GOALS BY STRATEGIC AREA

ASU is tracking the following metrics to assess its progress in pursuing the strategic goals outlined in this plan. Each of these indicators is listed in the table below together with an assessment of ASU's current performance and its five-year target for that metric

IT STRATEGIC AREA	GOAL	IT METRIC	CURRENT PROGRESS	TARGET 2018
Area #2: IT Infrastructure	Goal #1: Expand and enhance the High Performance Computing network across the entire enterprise to ensure access to HPC facilities from every ASU location	% Time that ASU's computer systems are operational (My ASU, Blackboard, PeopleSoft, Advantage, email) ^{*Past six months}	99.97%	99.9%
	Goal #2: Consolidate computer and storage systems in a few physical locations dispersed within the Phoenix Metro area to ensure secure and continuous operation of the University's information systems	% Time that ASU's computer network is operational ^{*Past six months}	99.28%	99.9%
	Goal #3: Continue to consolidate data and storage to improve reliability, security and cost	% University server capacity that has been virtualized to improve reliability, continuity and efficiency	70%	95%
		# TB of computer storage provided by centralized University storage infrastructure	7280TB	10,000TB
		% University using converged voice/data network	28%	35%
		% Campus with centrally provided wireless connectivity	95%	97%
		% Wired connections with 1GB capacity	57%	88%
		% Wireless connections with 300Mb capacity	23%	40%

APPENDIX

ASU PERFORMANCE METRICS AND TARGET GOALS BY STRATEGIC AREA

ASU is tracking the following metrics to assess its progress in pursuing the strategic goals outlined in this plan. Each of these indicators is listed in the table below together with an assessment of ASU's current performance and its five-year target for that metric

IT STRATEGIC AREA	GOAL	IT METRIC	CURRENT PROGRESS	TARGET 2018
Area #3: Administrative Effectiveness	Goal #1: Ensure ongoing viability of financial transaction processing and improve the quality of financial intelligence	# Tier 1 support calls answered by the University Help Desk	354,664	500,000
	Goal #2: Increase the efficiency of the proposal development, pre-award, and post award management sponsored research activity	# Tier 1 support calls that are successfully resolved within the published service levels	88%	99%
	Goal #3: Maintain the currency of the enterprise resource planning system	Average customer satisfaction rating on the quality of work performed, ease of use, staff service, communication and timeliness <small>(on a 4.0 scale where 1 is very dissatisfied and 4 is very satisfied)</small>	3.79/4.0	4.0/4.0
	Goal #4: Reduce the cost of new technology deployment and provide tools to increase process performance and collaboration	To be determined	N/A	N/A
	Goal # 5: Develop and implement an IT planning and governance process to facilitate execution of projects, project tracking and reporting, and overall performance measurement for the UTO organization based on industry best practices).	Measure the projects and plan according to there completion	180 completed projects	360 projects in FY2018
	Goal #6: Continue to improve customer service to increase the productivity of faculty, students and staff	Utilize survey data for measuring satisfaction levels beginning in 2014	N/A	N/A
	Goal #7: Support data driven decision making throughout the institution by making institutional data and analysis more available and actionable through a consistent interface	# of reports pulled from PlanView, My Reports, ASU Dashboards in FY2014	N/A	N/A
	Goal #8: Build and retain a talented IT Force	# of training and development opportunities for employees in FY2014	N/A	N/A

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IT STRATEGIC AREA	GOAL	IT METRIC	CURRENT PROGRESS	TARGET 2018
Area #4: Risk Management	Goal #1: Maintain a strong risk management program through a continuous cycle of assessing and mitigating potential risks	% Department or unit participation in the annual Risk Assessment Corrective Action plan.	86%	100%
	Goal #5: Improve the IT service model (reinventing IT services	Utilize survey data for measuring satisfaction levels beginning in 2014	N/A	+75% Satisfaction by 2018

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IT STRATEGIC AREA	GOAL	IT METRIC	CURRENT PROGRESS	TARGET 2018
Area #5: Academic Technology	Goal #1: Advance the implementation of the ASU 1:1 Mobile Initiative	# Daily users of MyApps/My Files	5,500	50,000
		%Classrooms equipped with computer projection and audio equipment	95%	100%
		% Wireless connections with 300Mb capacity	15%	60%
	Goal #2: Ubiquitous classroom mediation	% Courses hosted on a central learning management system	51%	95%
		% Courses through Quality Matters Rubric	10%	98%
	Goal #3: Implement and promote an Education Technology Studio	# Faculty who use the ETS	0%	90%
		# Courses enhanced by the ETS efforts	0%	90%
		# Students impacted by the ETS efforts	0%	90%

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IT STRATEGIC AREA	GOAL	IT METRIC	CURRENT PROGRESS	TARGET 2018
Area #6: Research Computing	Goal: To expand the central provisioning of "cycles, bytes, bandwidth and expertise," in support of sponsored research throughout the ASU research community.	# Researchers using ASU's Advanced Computing system	86%	100%
		\$ Sponsored research expenditures enabled	\$14M	\$28M
		# CPU-hours used	20.2M	45M
		# TB of storage of research data	600TB	5,000TB
		# Research projects hosted	500	1000
		# Courses using ASU's Advanced Computing System	6	30

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IT STRATEGIC AREA	GOAL	IT METRIC	CURRENT PROGRESS	TARGET 2018
Area #7: Strategic Technology Alliances	Identify opportunities to replace the direct provisioning of information services with externally provided services operating at larger scales	Number of strategic partnerships established with development companies and external service providers.	N/A	N/A

ASU Strategic Information Technology Goals	ASU STRATEGIC GOALS					
	Improve the quality of the undergraduate & graduate educational experience	Provide access to education for a growing student population	Recruit & retain faculty & staff in highly competitive national & local markets during a period of diminishing resources	Enhance and improve social embeddedness	Serve as a comprehensive provider of graduate & undergraduate education in a large metropolitan area while maintaining a nationally competitive research capacity & contributing to economic diversity in the Valley	Ensure the necessary facilities & capacity to accommodate growth
AREA #1 STUDENT SUCCESS						
Goal #1: Continue to improve eAdvisor to further enhance retention and graduation rates	X	X			X	X
Goal #2: Implement and expand the mobile.asu.edu experience for key applications	X	X			X	
Goal #3: Improve access to software applications by coordinating licensing and deploying new technologies to extend application services across the Internet	X	X				
Goal #4: Advance re-design and use of the Web as a tool for learning, messaging and knowledge capture and dissemination	X	X	X			
AREA #2 INFRASTRUCTURE						
Goal #1: Expand and enhance the High Performance Computing network across the entire enterprise to ensure access to HPC facilities from every ASU location			X		X	
Goal #2: Consolidate computer & storage systems in a few physical locations dispersed within the Phoenix Metro area to ensure secure and continuous operation of the University's information systems		X				X
Goal #3: Continue to consolidate data and storage to improve reliability, security, and cost		X				X
AREA #3 ADMINISTRATIVE EFFECTIVENESS						
Goal #1: Ensure ongoing viability of financial transaction processing and improve the quality of financial intelligence		X				X
Goal #2: Increase the efficiency of the proposal development, pre-award, and post-award management sponsored research activity					X	X
Goal #3: Maintain the currency of the enterprise resource planning system	X	X	X	X	X	X
Goal #4: Reduce the cost of new technology deployment and provide tools to increase process performance and collaboration					X	X
Goal # 5: Develop and implement an IT planning and governance process to facilitate project prioritization, streamline project execution, and provide project visibility through reports and online tracking and performance measurement to the University community.			X		X	X
Goal #6: Continue to improve customer service to increase the productivity of students, faculty and staff	X			X	X	X
Goal #7: Support data driven decision-making throughout the institution by making institutional data and analysis more available and actionable through a consistent interface.		X		X		X
Goal #8: Build and retain a talented IT workforce.			X	X		
AREA #4 RISK MANAGEMENT						
Goal #1: Maintain a strong risk management program through a continuous cycle of assessing and mitigating potential risks						X
Goal #2: Improve the IT Service Model (reinventing IT services based on industry best practices).	X				X	X
AREA #5 ACADEMIC TECHNOLOGY						
Goal #1: Advance the implementation of the ASU 1:1 Mobile Initiative	X	X		X		X
Goal #2: Ubiquitous classroom mediation	X				X	X
Goal #3: Implement and promote an Education Technology Studio	X		X			
AREA #6 RESEARCH COMPUTING						
Goal: To expand the central provisioning of "cycles, bytes, bandwidth and expertise," in support of sponsored research throughout the ASU research	X		X		X	X